

Gases and Liquids

Molecular Theory of Gases and Liquids, by J. O. Hirschfelder and C. F. Curtiss, both of the University of Wisconsin Naval Research Laboratory and department of chemistry, and R. B. Bird, of the Wisconsin chemistry engineering department, is a 1219-page survey of the equilibrium (equation of state, etc.) and non-equilibrium (transport phenomena) properties of gases and liquids, reduced to a "common basis" employing consistent notation and related by means of statistical mechanics to the complexities of intermolecular forces. This monumental volume, the most recent of the Wiley Structure of Matter Series, is an outgrowth, according to the authors, of studies undertaken in the "Bumblebee" program sponsored by the Navy Bureau of Ordnance and is a synthesis of the contributions made by a large number of people, many of whom are members of the Wisconsin NRL staff. The book is liberally supplied with charts and tables and, as a reference volume, will no doubt be considered an indispensable piece of equipment for workers in those branches of chemistry and chemical physics concerned with the behavior of matter in the liquid or gaseous states. (John Wiley & Sons, Inc., New York, 1954; \$20.00)

Heat Conduction

Previous editions of this book, *Heat Conduction with Engineering, Geological, and Other Applications*, were published by the McGraw-Hill Company. New chapters have been added on the drying of soils, which are said to follow the heat flow equations, and on the heat pump. Though of some interest to the physics student, the book will be chiefly useful to those who need approximate solutions of practical problems of heat flow and diffusion. (By Leonard R. Ingersoll, Otto J. Zobel, and Alfred C. Ingersoll; 325 pp.; The University of Wisconsin Press, Madison, Wisconsin, 1954; \$5.00.)

The Actinide Elements

Volume 14A of Division IV—the Plutonium Project Record—has been issued as part of the National Nuclear Energy Series. This volume, *The Actinide Elements*, edited by G. T. Seaborg and Joseph J. Katz (870 pp.; McGraw-Hill, New York, 1954; \$11.75) is one of the most thorough of the series. In addition to several chapters on the chemistry of the elements actinium through californium, there are chapters on their nuclear properties, fission properties, optical properties, and an excellent chapter on the crystal chemistry of the 5f elements. The book also contains the index for volume 14B of the series, *The Transuranium Elements*.

Exterior Ballistics

Uitwendige Ballistiek by W. Bevelander (165 pp.; Excelsior Publ.; The Hague, 1954) is a small paper-bound Dutch monograph on exterior ballistics. The book outlines the several methods for calculating gun trajectories. Several theories are described and the appropriate formulae are derived.

Books Received

THERMAL CONDUCTIVITY OF METALS AND ALLOYS AT LOW TEMPERATURES. A Review of the Literature. By Robert L. Powell and William A. Blanpied. National Bureau of Standards Circular 556, 68 pp. U. S. Government Printing Office, Washington 25, D. C., 1954. \$.50.

ORGANIC SYNTHESIS. An Annual Publication of Satisfactory Methods for the Preparation of Organic Chemicals (Volume 34). Editor-in-Chief William S. Johnson. 121 pp. John Wiley & Sons, Inc., New York, 1954. \$3.50.

A BUDGET OF PARADOXES (Second edition). Volumes I & II. By Augustus De Morgan. Edited by David Eugene Smith. 789 pp. Dover Publications, Inc., New York, 1954. \$4.95.

THE PHYSICS OF PARTICLE SIZE ANALYSIS (Conference, University of Nottingham, April 1954). Supplement No. 3 of the British Journal of Applied Physics. Edited by H. R. Lang. 218 pp. The Institute of Physics, London, England, 1954. 35s.

PHYSICAL MEASUREMENTS IN GAS DYNAMICS AND COMBUSTION. Volume IX of High Speed Aerodynamics and Jet Propulsion. Editors: Part 1, R. W. Ladenburg; Part 2, B. Lewis, R. N. Pease, H. S. Taylor. 578 pp. Princeton University Press, Princeton, New Jersey, 1954. \$12.50.

NUCLEAR SPECIES. By H. E. Huntley. 193 pp. (Macmillan, England) St. Martin's Press, Inc., New York, 1954. \$4.50.

TEXTBOOK OF PHYSICS. Edited by R. Kronig. 855 pp. (Pergamon Press, England) Interscience Publishers, Inc., New York, 1954. \$10.50.

HANDBOOK OF TEXTILE FIBERS. Edited by Milton Harris. 356 pp. Harris Research Laboratories, Inc., Washington, D. C., 1954. \$12.50.

SUPERFLUIDS. Volume II of Macroscopic Theory of Superfluid Helium. By Fritz London. 217 pp. (Chapman & Hall, England) John Wiley & Sons, Inc., New York, 1954. \$8.00.

NICKEL IN IRON AND STEEL. By A. M. Hall. 595 pp. (Chapman & Hall, England) John Wiley & Sons, Inc., New York, 1954. \$10.00.

PHYSICAL METHODS OF ORGANIC CHEMISTRY (Second revised edition). Volume I, Part 3 of Technique of Organic Chemistry. Edited by Arnold Weissberger. 433 pp. Interscience Publishers, Inc., New York, 1954. \$8.50.

FLUID DYNAMICS OF JETS. By Shih-I Pai. 227 pp. D. Van Nostrand Company, Inc., New York, 1954. \$5.00.

STRUCTURE OF MOLECULES AND INTERNAL ROTATION. By San-ichiro Mizushima. 244 pp. Academic Press Inc., New York, 1954. \$6.00.

ELECTROMETRIC pH DETERMINATIONS. THEORY AND PRACTICE. By Roger G. Bates. 331 pp. (Chapman & Hall, England) John Wiley & Sons, Inc., New York, 1954. \$7.50.

ROCKET EXPLORATION OF THE UPPER ATMOSPHERE. [Special supplement (Vol. 1) to the Journal of Atmospheric and Terrestrial Physics.] Edited by R. L. F. Boyd and M. J. Seaton, in consultation with H. S. W. Massey. 376 pp. (Pergamon Press, England) Interscience Publishers, Inc., New York, 1954. \$11.00.

AMERICA'S RESOURCES OF SPECIALIZED TALENT. A CURRENT APPRAISAL AND A LOOK AHEAD. Report of the Commission on Human Resources and Advanced Training. Edited by Dael Wolfe. 332 pp. Harper & Brothers, New York, 1954. \$4.00.

HIGH-ENERGY ACCELERATORS. By M. Stanley Livingston. 157 pp. Interscience Publishers, Inc., New York, 1954. \$3.25.